

Electronic Supplementary Material

Dendrimer-induced synthesis of porous organosilica capsules for enzyme encapsulation

Ziyi Chu¹, Boyu Zhang¹, Zhenhua Wu¹, Jiayu Zhang¹, Yiran Cheng¹, Xueying Wang¹, Jiafu

Shi (✉)^{1,2,3}, Zhongyi Jiang^{2,4}

1 School of Environmental Science & Engineering, Tianjin University, Tianjin 300072, China

2 Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin 300072, China

3 State Key Laboratory of Biochemical Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China

4 Key Laboratory for Green Chemical Technology of Ministry of Education, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China

E-mail: shijiafu@tju.edu.cn

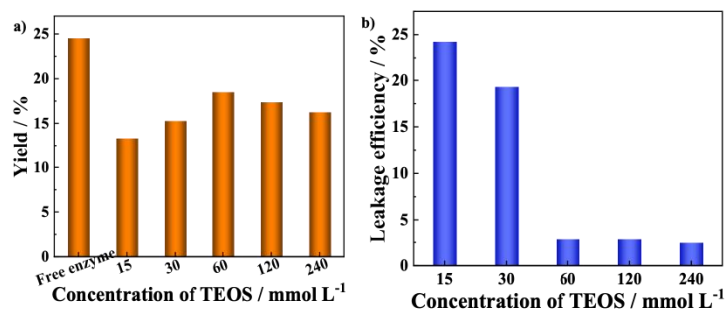


Fig. S1. a) Yield and b) leakage efficiency of MIase@OSN systems with different concentrations of TEOS

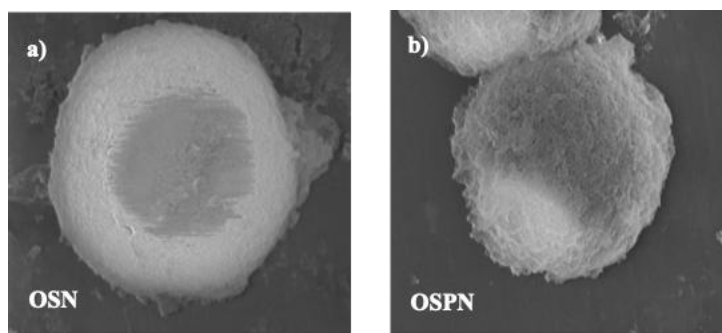


Fig. S2. SEM images of OSN and OSPN capsule

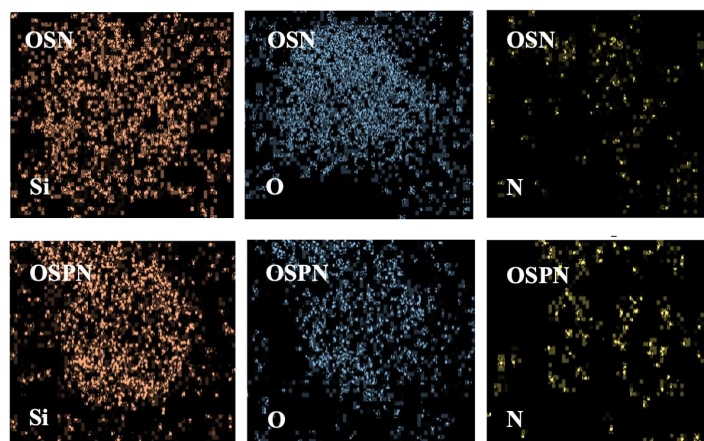


Fig. S3. EDS elemental mappings of OSN and OSPN capsule

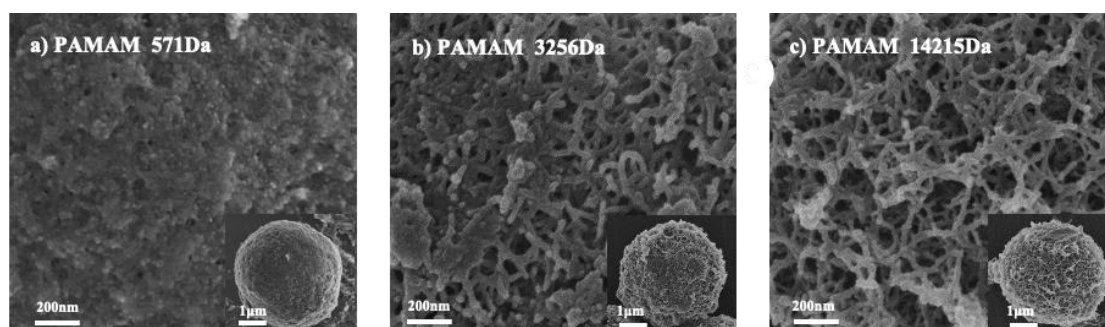


Fig. S4. SEM images of OSPN capsules with different molecular weights of PAMAM

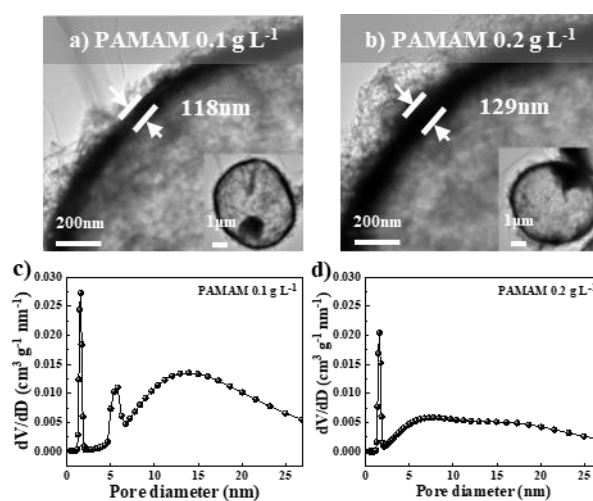


Fig. S5. a-b) TEM images, c-d) pore size distribution, of OSPN capsules with different concentrations of PAMAM

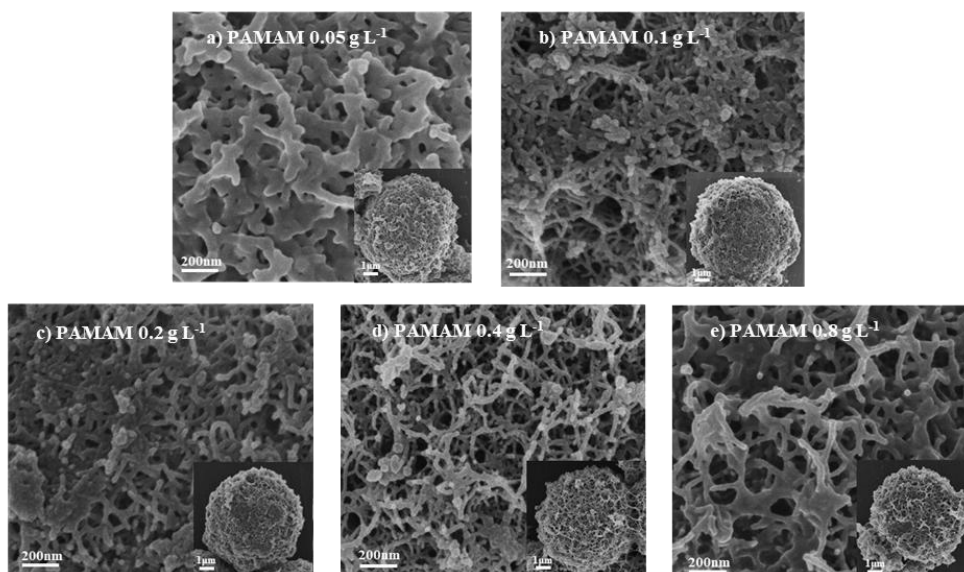


Fig. S6. SEM images of OSPN capsules with different concentrations of PAMAM

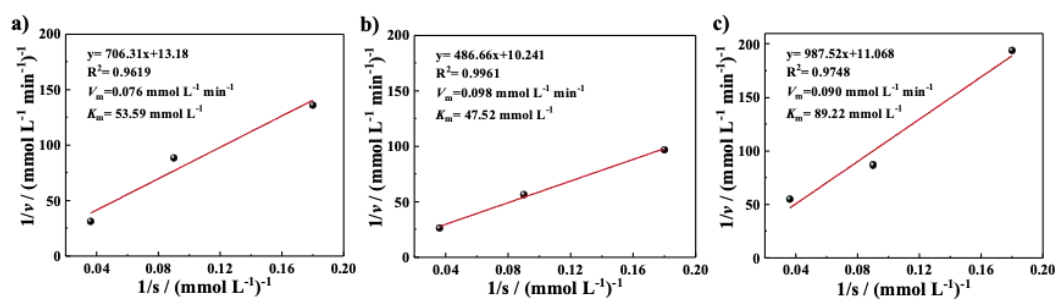
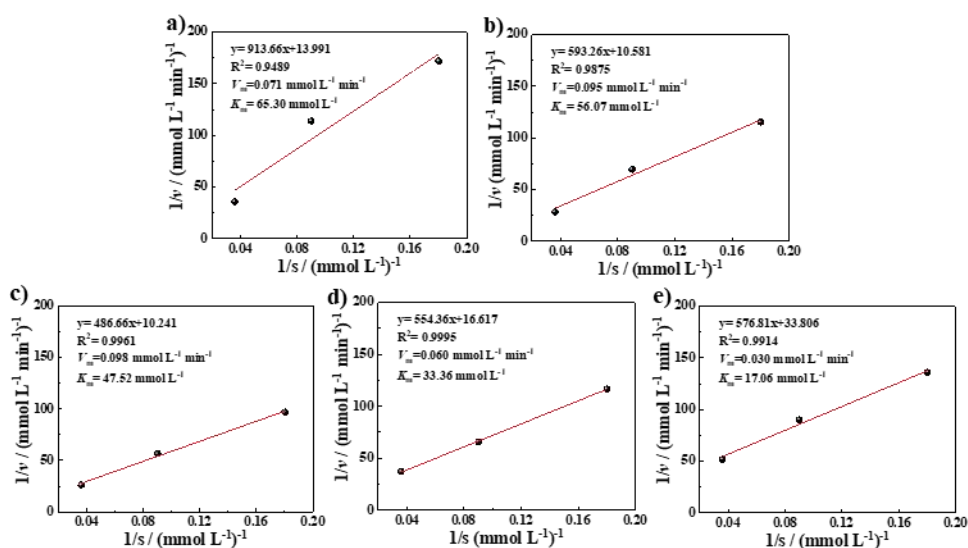


Fig. S7. Typical Lineweaver–Burk plots of MIase@OSP at different molecular weights of



PAMAM (a) 571 Da, b) 3256 Da, c) 12415 Da)

Fig. S8. Typical Lineweaver–Burk plots of MIase@OSPN at different concentrations of PAMAM (a) 0.05 g L⁻¹, b) 0.1 g L⁻¹, c) 0.2 g L⁻¹, d) 0.4 g L⁻¹, and e) 0.8 g L⁻¹)

Table S1 Surface area and total pore volume of OSPN capsules with different molecular weights of PAMAM

Molecular weight of PAMAM / Da	Surface area / m ² g ⁻¹	Total pore volume / cm ³ g ⁻¹
571	32.880	0.104
3256	43.153	0.185
14215	30.590	0.117

Table S2 Surface area and total pore volume of OSN capsules with different concentrations of PAMAM

Concentration of PAMAM / g L ⁻¹	Surface area / m ² g ⁻¹	Total pore volume / cm ³ g ⁻¹
0.05	70.462	0.212
0.1	73.370	0.237

0.2	27.573	0.108
0.4	70.280	0.239
0.8	51.438	0.220
